INTERNAL AUDIT REPORT

REVIEW OF CASPS
PHASE 1
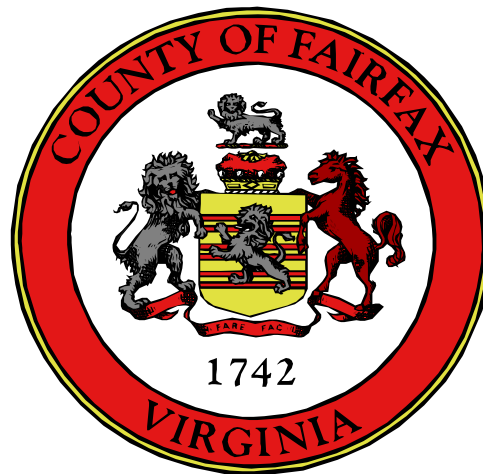
FAIRFAX COUNTY, VIRGINIA
INTERNAL AUDIT OFFICE
M E M O R A N D U M

TO: Robert J. O'Neill, Jr.   **DATE:** October 20, 1999
                 County Executive

FROM: Ronald A. Coen, Director
                 Internal Audit Office

SUBJECT: Report on the *"Review of CASPS-Phase 1"*

This is a report on the *"Review of CASPS-Phase1"*. It was performed as part of our FY1999 Annual Audit Plan.

The findings and recommendations of this audit were discussed with the Department of Purchasing and Supply Management. We have reached agreement on all of the recommendations and I will follow up periodically until implementation is complete. Their responses are incorporated into the report and the full response is attached.

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Introduction

The **C**ounty **A**nd School **P**rocurement **S**ystem, known as **CASPS**, is an online interactive automated purchasing system that is used by the Fairfax County Government (County) and the Fairfax County Public Schools (FCPS). CASPS was implemented in FY 1998 through a joint effort of the County and the FCPS to replace an aging suite of mainframe systems. CASPS automates the entire purchasing function from the initiation of the purchase requisition through the receipt and payment for the goods and services. On an annual basis, CASPS is used to process more than 100,000 purchasing documents for over $334,000,000.

Anticipated benefits of the new CASPS system include:

- Creation of economies of scale and improved operational efficiency by implementing uniform purchasing systems for both the County and FCPS,

- Improved functional capabilities including enhanced access to information and faster processing of transactions,

- A purchasing system that is fully compatible with future upgrades and enhancements,

- An application that is Y2K compliant, ensuring continued operations in the year 2000.

The CASPS system consists of three modules, which are:

- **Purchase Order Module**: This module is used for the acquisition of goods and services from vendors.

- **Inventory Management Module**: This module is used to manage consumable item inventories for County and FCPS departments.

- **Accounts Payable Module**: This module initiates payments to vendors and records the transactions in the County's accounting system (FAMIS).

The actual cost for CASPS from FY 1997 through December 31, 1998 is estimated at $2.8 million. Planned future improvements include implementation of a Graphical User Interface (GUI) to improve the user friendliness of the system, and continued integration of the system with electronic commerce applications like Electronic Data Interchanged (EDI), Internet, and the World Wide Web (WWW).

Purpose and Scope

In recent years the County has been under pressure to be more efficient and do more with less. There have been significant reorganization and changes to the County organizational structure. We have been relying more and more on technology to improve work processes. We also have decentralized our major financial and purchasing processes to a much greater degree. All of these changes increase the importance of adequate cost effective internal control as well as the risk of loss. For these reasons, we included a review of the adequacy of internal controls over the CASPS system in our FY 1999 Audit Plan.

The US General Accounting Office has issued Standards for Internal Controls in the Federal Government. The six specific standards contained in the document define the minimum level of

quality acceptable for internal control systems to operate and constitute the criteria against which systems can be evaluated. These standards apply to all operations and administrative functions. They also apply to state and local governments. In addition, the General Accounting Office Federal Information System Controls Manual (January 1999), defines proper separation of duties practices in financial/purchasing process. The objective of this audit is to determine if internal controls of the CASPS procurement system meet these standards.

We selected a sample of six County departments to evaluate and test the controls over CASPS. We tested three departments in greater detail including the review of a sample of transactions. We reviewed the separation of duties and access privileges for the remaining three. We selected departments with small, medium, and large operations as follows:

- Department of Telecommunications and Consumer Services
- Fairfax County Park Authority
- Fairfax County Public Libraries
- Equipment Management & Transportation Agency
- Reston Community Center
- Retirement Administration

Our test period includes transactions for the six-month period from July 1, 1998 through December 31, 1998.

The audit is scheduled in two separate phases. Phase one covers the Purchase Requisition/Purchase Order processing. Phase two covers the Accounts Payable process and will be conducted in FY 2000. Separate reports will be issued on each phase. This is the report on phase one.

Executive Summary

In our opinion, the CASPS Purchase Order Module, including Purchase Requisition/Purchase Order processing meets the internal control standards of the U.S. GAO Standards for Internal Controls and the GAO Federal Information Systems Control Manual except for the following areas:

- County departments are assigning incompatible purchasing duties to individual CASPS users. Initial guidance provided by DPSM when CASPS was implemented in November 1997 should be clarified and reissued as formal policy to ensure proper separation of duties via CASPS and preclude one individual from purchasing, receiving, and paying for goods and services.

- There is no record or automated management trail for CASPS system administration transactions. A management trail capability is being developed to allow for the recording and retrieval of the critical CASPS System Administrator activity.

- The automated User Delegation Profile capability allows department heads maximum latitude in covering purchasing tasks during periods of employee absence. DPSM should issue and monitor compliance with policy on the appropriate use of the profile. In addition, DPSM should review the possibility of making a modification to the CASPS system that would prevent system users from delegating to others in another department without going through the CASPS System Administrator.

- There is no comprehensive and up-to-date document to describe the duties, functions, and the responsibilities of System Administrators. We recommend this be developed.

- CASPS does not meet the overall reporting needs of the departments. DPSM has recognized the need for enhanced reporting and is developing OLQ as a partial solution.

We have concentrated on internal control issues in the CASPS application system, department use, and some corresponding general computing environment issues. During our examination, minor deficiencies in record keeping, documentation files, and purchasing steps were discussed and resolved with departments. Recommendations to improve basic purchasing controls, develop guidelines, and implement safeguards in our business practices are addressed to the Department of Purchasing and Supply Management.

Comments and Recommendations

1. County departments are assigning incompatible purchasing duties to individual CASPS users.

Some of the departments that we examined in our sample, had incompatible purchasing duties being carried out by the same individual. This included circumstances where individuals carried out purchase initiation, approval, and receiving duties.

The small purchase process is used for purchases under $5,000. Departments spend more that $20 million annually via the small purchase process. Departments generally allow the same individual to carry out the entire purchase process without any supervisory oversight or review.

Standards in the GAO Federal Information System Controls Manual, (January 1999), indicates that the following duties should not be assigned to the same individual:

- data entry and verification of data
- data entry and its reconciliation to output
- input of purchasing transactions and receipt of goods
- data entry and supervisory authorization

Failure to maintain this appropriate separation of duties increases the risk of errors, waste, unauthorized purchases, and loss of assets.

In the process of decentralizing the County's financial processes, DPSM and the Department of Finance have issued some general guidelines concerning separation of duties. This guidance places the responsibility at the individual department level. DPSM also intends to perform regular reviews of CASPS user departments for compliance with established guidelines. This program is still in process of development.

Recommendation
(A) DPSM should revise and re-issue a formal policy and guidelines addressing separation of duties when setting up CASPS routing and approval process. The policy should adhere to the GAO standards for separation of duties. At a minimum, we recommend use of either of two acceptable separations of duties approaches. One requires a departmental supervisor to authorize all purchase transactions prior to leaving the department for further processing. The other alternative requires departments to assign a separate individual for purchasing requisition, receiving of goods, and making payments. (See Chart #1 for illustration of acceptable and unacceptable combinations of purchasing duties.)

Department Response
DPSM concurs with the recommendation and will revise and re-issue formal policy and guidelines addressing separation of duties.

(B)   DPSM should complete development and implementation of their program to perform regular reviews of CASPS user departments for compliance with the established guidelines.

Department Response

DPSM concurs with the recommendation. DPSM has obtained a new Management Analyst II position to work with the Buyer II currently dedicated to the Procurement Assistance and Compliance Program. DPSM hopes to have the new staff in place by December 1999.

(C)   CASPS system access privileges must be revised to reflect the implementation of this requirement in the system. The CASPS elements used to define system privileges, including functional access, monetary limits, and routing and approval levels must be coordinated to achieve the effective levels of financial control.

Department Response

DPSM concurs with the recommendation. An implementation period of 90 days is planned (March-May 2000). During this time, departments will be given assistance to review their current A&R structure and to modify it as appropriate.

2. There is no record or automated management trail for CASPS system administration transactions.

In December 1998, DPSM submitted a change management request (problem log #98.239) to DIT to enable the audit trail function. DIT determined that using Hiperstation was the best solution. Steady progress has been made to make this a reality. CASPS has been moved to CICSP2 and Hiperstation has been installed. The transaction data sets to be monitored have been identified and defined and work on the report format is in progress. Availability is projected for September 1999.

A management trail for an application system must provide:

- a mechanism to identify the sequence of actions,
- the people that caused an event to occur,
- the result of the event, and
- the ability to reconstruct/reverse the event.

The actions taken in the system administration portion of the system are important because they control the functions used to manage the County's purchase processing. Changes to system tables and user security are reportable events. They include access control parameters, report production selection, and transaction processing alternatives. The ability to review and trace the trail of these actions is a basic element of system management.

Without recording application security and table changes, erroneous changes may alter the functions of the system. A single individual may accomplish changes without a record of their action.

The audit log feature in CASPS was disabled to improve system performance, however, this action also disabled reports that captured transaction activities initiated by system users. As a result, no automated management trail exists to track CASPS system administration changes.

Recommendation

We recommend the Department of Purchasing & Supply Management (DPSM) take the steps necessary to capture CASPS system administration activity by coordinating with DIT. DIT's use of the Hiperstation software to track system change activities is being implemented. DIT is currently capturing all transaction updates. These updates include both the user transaction activities and system administration changes. The ability to extract and report the system administration changes should be available upon request by the Systems Administrators and their respective supervisors in September 1999.

Department Response

DPSM and DIT are well aware of this shortcoming. We have raised the priority of CASPS Change Request #98.239 and are trying to accelerate inauguration of the data capturing and reporting capabilities of Hiperstation.

3. The automated User Delegation Profile capability exceeds the original design intent to delegate reviewer authority from one reviewer to another.

The CASPS User Delegation Profile transaction (screen #08U) permits users to delegate their transaction profile, transaction set, and monetary limit to an individual for a specified period of time. This feature is designed to accommodate users who need to delegate their authority during planned leave.

An individual can delegate his/her transaction profile to another individual with a different transaction profile. Therefore, it's possible for a system user to initiate and approve documents for more than their original intended privileges. A user may delegate his/her authority to another user without going through the DPSM Systems Administrators and circumvent the intended department routing and approval. In addition, we found that an individual from one department may delegate to an individual in another department.

Separation of duties is important between a Systems Administrator and a user. Users system access is based on the principle of the "need to know" and the "least possible privilege". Access is provided which allows users to have the minimum needed to carry out job duties. The ability to delegate authority to others without restriction allows users to act as "Systems Administrators" and circumvent established departmental separation of duties.

Users are able to delegate their authority to any other CASPS user without approval or other review. A delegatee who had initiation and approval capabilities up to $5,000 may be able to exceed this threshold without further approval within the department during the delegator's absence.

Internal Audit believes that the best use of the delegation feature is to delegate monetary authority between users with the same transaction profile (i.e. one reviewer to another). However, the system currently allows the delegators to give all of their authority (i.e. transaction profile, transaction set, and monetary limit) to a delegatee with a different authority for a limited time.

Recommendation

We recommend DPSM issue a policy on the appropriate use of the delegation function and develop a capability to monitor departmental compliance. We recommend DPSM review the possibility of altering this feature in CASPS to prevent system users from delegating to persons in other departments.

Department Response

DPSM concurs with the need for a policy on using the delegation function (TXN 08U) and to develop oversight of its use. DPSM has initiated a change action to restrict the delegation function to only delegations within departments. The change is currently being tested.

4. There is no comprehensive and up-to-date document to describe the duties, functions, and the responsibilities of Systems Administrators.

There are four separate sets of documentation available:

- Maintenance for CASPS Approval & Routing for PR's and Buyers,
- Delegation of CASPS User Security memo,
- CASPS Approval & Routing Policies, and
- the original vanilla version provided by the vendor (Walker Interactive Systems) during pre-implementation phase of CASPS.

There were numerous in-house program changes made that are not reflected in these documents. The DPSM Systems Administrator is currently working on a preliminary draft for management review.

Documentation is a necessary part of a large-scale application system that supports the overall control environment by ensuring appropriate safeguard of County data and security access to system files. Documented procedures are necessary for end-user tasks as well as for system administration. Documentation is needed to outline the functional tasks performed by Systems Administrators and their backup administrators. This documentation should reflect the system administration duties for CASPS security and table maintenance. Documentation for the system administration functions should reflect the same format and level of detail as that produced for system end user functions.

In the absence of sufficient documentation, the knowledge of functional requirements for a Systems Administrator rests with the existing staff. In the absence of one or both Systems Administrators in DPSM, there is no guideline to describe their responsibilities and how they are to be administered effectively. Extra steps may become necessary to determine how a particular system function works. DPSM staff turnover in the systems administration area and the sense of urgency to meet the CASPS implementation deadline delayed the opportunity to develop the necessary documentation. Canceling documentation tasks to meet production deadlines is a common documentation shortfall.

Recommendation
We recommend the Department of Purchasing & Supply Management work with DIT Corporate Systems Training Division to develop documentation to describe the systems administration function for the CASPS application.

Department Response

DPSM concurs with the recommendation and will issue a Systems Administration Manual by October 31, 2000. A ten (10) chapter manual is envisioned with a production schedule of about a chapter per month plus two months for coordination and rewrites.

5. CASPS does not meet the overall reporting needs of the departments.

All of the six departments included in our examination expressed a need for CASPS purchase order reports. Currently, the departments are not receiving the CASPS reports to help them monitor outstanding SO and PO documents. On-line capability does not provide a snapshot or a summary level information of the documents by status or category. They specifically requested the outstanding PO & SO documents, status of PO documents, BP & PO that have encumbered balances, and PO sorted by contract number and vendor. Some of these reports are either available in DPSM or listed on their change management request to DIT. DPSM has recognized the need for enhanced reporting and is developing OLQ as a partial solution. Additionally there are about 19 separate reports under development/refinement status on the problem log. These reports are projected for availability August 31, 1999. User's also had suggestions for improving the format, content, frequency, and timeliness of the reports. There may be additional reporting needs not yet identified in user departments.

The CASPS application system should provide needed reports to the users via hardcopy or on-line. The reports should be relevant, accurate, and useful in supporting the departments use of the CASPS system. Reports that are currently distributed should be supplemented based on user requirements.

Departments must rely on their internal procedures and additional manual steps to keep track of requisitions in the absence of any purchase order reports.

Insufficient time was expended during the system design phase to identify and design user reports based on department requirements. This was partly due to meeting the CASPS implementation deadline.

Recommendation
We recommend the Department of Purchasing & Supply Management (DPSM) work closely with the user departments to meet their reporting requirements. A report needs survey may be sent to all departments using CASPS.

DPSM staff have agreed to work on reporting needs of departments by generating in-house reports using the reportbuilder and consulting with DIT staff to generate OLQ and transaction activity reports using the Hiperstation software utility.

The general categories of reports to generate are:

- detail reports,
- exception reports,
- summary reports,
- internal (system or security) reports, and
- external (regulatory) reports.

In addition, the users should have on-line access and print capability to sundry reports similar to INFOPAC available in FAMIS. This will reduce the cost of printing and improve overall administrative efficiency.

Department Response

DPSM concurs with the recommendation and has taken the following steps to respond:

- Reports will be the primary focus of the next CASPS Focus Group meeting scheduled for October 12, 1999. The group representing the major CASPS users will be briefed on the 146 CASPS reports available and asked for their report requirements.

- The process for placing reports in INFOPAC has been refined and the number of CASPS reports in INFOPAC has been almost doubled in the last 30 days.

- The process for giving CASPS users access to CASPS reports in INFOPAC has been refined. DPSM is working with DIT to set-up over 60 new users and train them in the use of INFOPAC.

- DPSM resumed reviewing the IM and PO transaction data sets to determine which data sets should be defined in On-Line Query (OLQ) to facilitate the use of OLQ.

- A process to grant OLQ access to qualified CASPS users has been developed, and a pilot OLQ course has been taught.

- Fifteen (15) new reports have been developed and placed in production since July 1, 1999.

SEPARATION OF DUTY CONTROLS
(CHART #1)

	(COLUMN 1) BEST PRACTICE	(COLUMN 2) EXAMPLE ONE	(COLUMN 3) EXAMPLE TWO	
		> $0	**< $5K**	**> $5K**
INITIATING	A	A	A	A
APPROVING	B	B	A	B
RECEIVING	C	A OR B	B	A OR B
PAYMENT:				
INITIATING	D	A	A OR B	A
APPROVING	E	B	C	B
RECONCILING	F	B	B OR C	B
STAFF REQUIRED:	6	2	3	2

Both COLUMN 2 and COLUMN 3 are under the header * * ACCEPTABLE PRACTICE

NOTE: Letters in the above table represent individuals performing
various duties

**   Examples one (>$0) and two (>$5K) cannot be used interchangeably
within an agency

COL. 1   Best practices separates each of the duties

COL. 2 & 3   Acceptable examples in Col. 2 # 3 indicate two alternatives that
may be selected for implementation

NOTE:

THE GREATER THE DIVISION OF DUTIES THE MORE EFFECTIVE THE IMPLEMENTATION OF CONTROLS